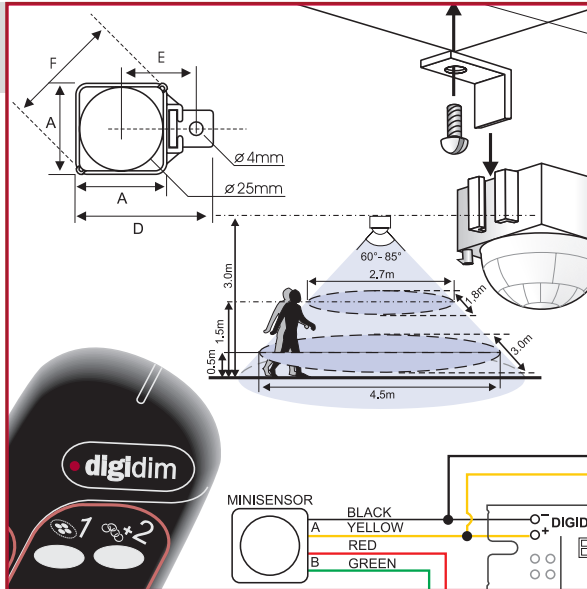


Ref
2.0.1



Minisensor User guide

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Introduction

The Helvar Minisensor is a two channel luminaire-mounted component containing three integrated sensors:

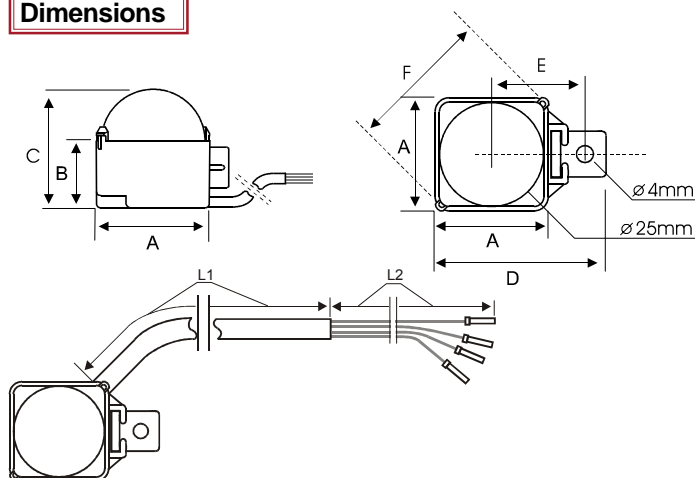
- Presence detector (PIR)
- Constant light sensor
- Infrared (IR) receiver.

The two separate channels (A & B) enable scene setting & lighting control. The constant light sensor only adjusts the output from channel A, where-as presence detection & infrared control affect both channels.

The Minisensor is only compatible with the Helvar EL-si electronic DALI ballast range. Sensor set-up & programming is achieved using the Helvar Digidim infrared remote control.



Dimensions



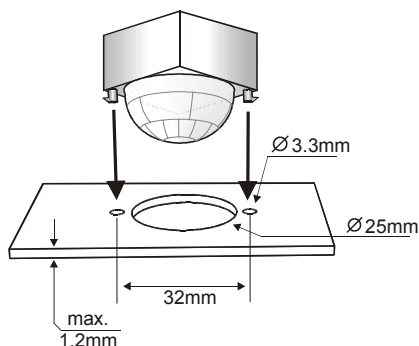
Dimension (mm)

A	26.4
B	15.5
C	27.5
D	39.8
E	21.6
F	32

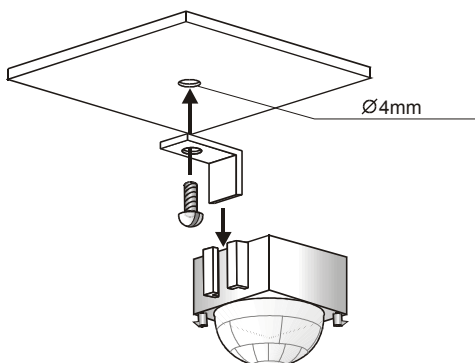
Weight	25g
L1	750
L2	200
L1 + L2	950

Installation

Clip on assembly



Surface mounting

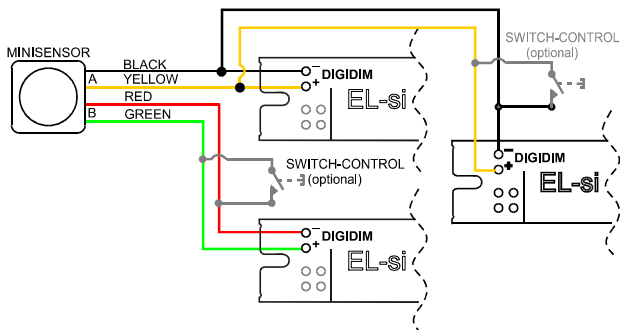


Connection

- Maximum connection:
Up to 4 ballasts per Minisensor. Combinations are found from the following table.

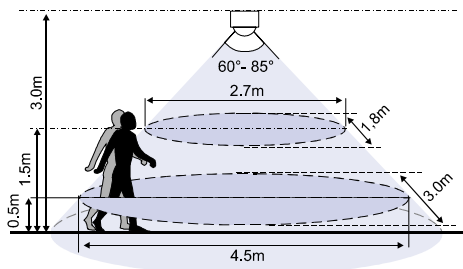
Example connection Ch A: 2pcs, Ch B: 1pcs

	Channel			
	A		B	
Lead color	Ye	Bl	Gr	Rd
Polarity	+	-	+	-
No. of ballasts	0		4	
	1		3	
	2		2	
	3		1	
	4		0	

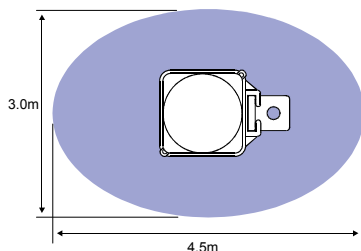


Reception areas

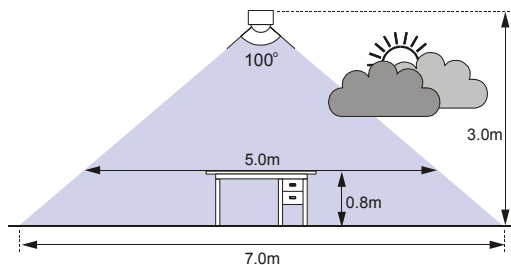
Presence detector (PIR)



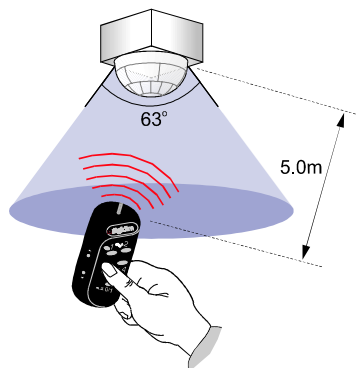
Orientation (PIR)








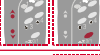


Constant light sensor






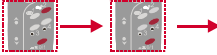







Infrared (IR) control



Quick functionality guide

	Key press (All given key combinations are supposed to be pressed for 10 seconds)	Minisensor reset Page 6.	Constant light Page 8.			PIR Page 9.			Last level Page 11.	
			Enable	Disable	Change level	Enable	Disable	Delay time	Enable	Disable
A	 "3" & "4"	✓	✓			✓				✓
B	 "0/1" & "1"			✓						
C	 "0/1" & "2"						✓			
D	 "0/1" & "3"							Selects long Alters short	✓	
E	 "0/1" & "4"							Selects short Alters long	✓	
F	 ▲ or ▼, "0/1"				✓	PIR ON				
G	 "0/1" & ▲					PIR MIN				
H	 "0/1" & ▼					PIR OFF				

Key press combinations (see above)	Manual on, automatic off		
	Enable	Disable	Delay times ^{*)}
 C → D	✓		 E once, delay = 20min  E twice, delay = 30min  E thrice, delay = 45min  E four times, delay = 60min
 C → E	✓		 D once, delay = 20s  D twice, delay = 1min  D thrice, delay = 5min  D four times, delay = 10min
 A		✓	

* Practical configuration example enclosed in appendix B (example 2)

“Out-of-box” operation

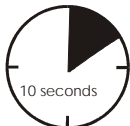
Upon first application of power the Minisensor operates according to the programmed memory of the EL-si ballast. If the ballast has no program then the IR buttons “▲”, “▼” and “0/1”(On/Off) will be active. Channel control is also active. This allows the control of channels A&B (please see section “IR-control” for more information). To program default scenes 1-4 and to activate further features, please see the “Initial configuration” section for more information.

Use the Helvar Digidim infrared remote control for configuration.

Initial configuration / Minisensor reset (default settings)

Simultaneously press & hold “3” & “4” for 10 seconds to install initial settings.

(The operation is confirmed by flashing the lamps.)



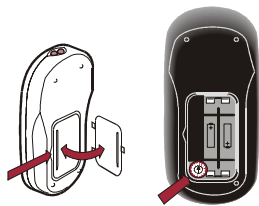
Settings installed:

- IR address group. (See notes)
- Constant light sensor enabled.
 - Constant light level must be programmed. (See “Constant light” section)
 - Constant light level is measured and updated every 5 seconds
- PIR enabled.
 - “No movement detected” delays:
 - After 20 minutes switch to minimum light level.
 - After an additional 20 seconds, switch lights off.
- IR receiver enabled.
- Last level recall function disabled.
- Basic lighting scenes stored.

• 100%	=	scene 1
• 75%	=	scene 2
• 50%	=	scene 3
• 25%	=	scene 4
• 100%	=	PIR ON light level scene
• 1%	=	PIR LOW Light Level scene
• 0%	=	PIR OFF light level scene

Notes:

- Set the rotary switch of the remote control (in battery compartment) to an address group (0-F).
- All Minisensors will respond to Digidim remote controls set to address 0 or D.
- If more than one remote control will be used to control different Minisensors in the same area the remote controls must be addressed to different groups (1-9, A, B, C, E or F). The Minisensor will then respond to its corresponding remote control only.



- Always point the remote control directly at the Minisensor to be configured.
- Take care that no other minisensor is in the IR-reception area unless they are supposed to belong to the same address.
- Point at the minisensor to be addressed and press “3” & “4” for 10 seconds or until lights flash.

Infrared (IR) control



- A "0/1" (ON/OFF) key.
- Toggles the lighting between 100%*) and OFF.
- B "1", "2", "3" or "4" key.
- Recall of stored scene or preset level for the selected key.
- C "▲" key.
- Single push.
 - Switches channel A & B on to minimum level (if lights were off).
 - Steps up channel A & B by one step (if lights were on).
 - Press & hold.
 - Dims up channel A & B from minimum (if lights were off).
 - Dims up channel A & B from last level (if lights were on).
- D "▼" key.
- Single push.
 - Steps down channel A & B by one step (if lights were on).
 - Press & hold.
 - Dims down channel A & B from last level (if lights were on).

*) If Constant light has been enabled and programmed the Minisensor will set the lights to the Constant light level after a short period of time.

Modify and store preset light levels.

- Use the remote control "▲" or "▼" keys to adjust the lighting of channel A & B to the desired level.
- Press & hold (for 10 seconds) the desired remote control scene button ("1", "2", "3" or "4") where you would like the preset level to be stored.
- The operation is confirmed by flashing the lamps.

Modify and store scenes (channel A & B).

- Simultaneously press & hold "1" & "▲" or "▼" to raise or lower the light level of channel A to the desired level.
- Simultaneously press & hold "2" & "▲" or "▼" to raise or lower the light level of channel B to the desired level.
- Press & hold (for 10 seconds) the desired remote control scene button ("1", "2", "3" or "4") where you would like the scene to be stored.
- The operation is confirmed by flashing the lamps.
- Repeat the above for up to 4 scenes. (buttons "1" to "4")

Notes:

- Scene is a combination of light levels of channel A and B that can be recalled by the press of a button.
- Storing scenes on buttons "1" to "4" will replace any previously stored preset light levels.

Constant light (channel A)

Enable constant light function (only possible through initial configuration / minisensor reset).



- Simultaneously press & hold "3" & "4" for 10 seconds.
- The operation is confirmed by flashing the lamps.

Note:

This also resets all scenes.

Disable constant light function.



- Simultaneously press & hold "0/1" & "1" for 10 seconds.
- The operation is confirmed by flashing the lamps.

Change and store constant light level (Ensure that the constant light function is enabled as above).



Select the overall desired light level: See Infrared (IR) control section.

- Simultaneously press & hold "0/1" for 10 seconds.
- The operation is confirmed by flashing the lamps.

Notes:

- Only the light level of channel A will vary in order to try to keep the stored overall constant light level.
- Constant light will not switch lighting on or off.
- The stored constant light level is not affected by the PIR.
- The stored constant light level is not affected by switching the lights off.
- The stored constant light level is equal to the PIR "ON" level.

Presence detector (PIR)

Enable PIR (only possible through initial configuration / minisensor reset).



- Simultaneously press & hold “3” & “4” for 10 seconds.
- The operation is confirmed by flashing the lamps.

Note:

This also resets all scenes.

Disable PIR.



- Simultaneously press & hold “0/1” & “2” for 10 seconds.
- The operation is confirmed by flashing the lamps.

Enable “Manual ON, Automatic OFF” feature with 20min. delay time



- Simultaneously press & hold “0/1” & “2” for 10 seconds.
- Simultaneously press & hold “0/1” & “4” for 10 seconds.

Note:

This must be done before setting the PIR delay time. If you require a different delay time please see PIR delay time settings instructions.

Enable “Manual ON, Automatic OFF” feature with 20seconds delay time



- Simultaneously press & hold “0/1” & “2” for 10 seconds.
- Simultaneously press & hold “0/1” & “3” for 10 seconds.

Note:

This must be done before setting the PIR delay time. If you require a different delay time please see PIR delay time settings instructions.

Disable “Manual ON, Automatic OFF” feature(only possible through initial configuration / minisensor reset)



- Simultaneously press & hold “3” & “4” for 10 seconds.
- The operation is confirmed by flashing the lamps.

Note:

This also resets all scenes.

Notes:

- “Manual ON, Automatic OFF” feature = PIR will not switch the lights on when movement is detected, but will switch them off if no movement is detected.
- Regardless of other light level commands (e.g. changes in the constant light level), an enabled PIR will switch the lights to the PIR OFF scene if no movement is detected within its programmed delay time.

Presence detector (PIR)

Set PIR ON scene

Select the overall desired light level: -See Infrared (IR) control section.



- Simultaneously press & hold "0/1" for 10 seconds.
- The operation is confirmed by flashing the lamps.

Note:

This also sets the Constant light level

Set PIR LOW scene

Select the overall desired light level: -See Infrared (IR) control section.



- Simultaneously press & hold "0/1" & "▲" for 10 seconds.
- The operation is confirmed by flashing the lamps.

Set PIR OFF scene

Select the overall desired light level: -See Infrared (IR) control section.



- Simultaneously press & hold "0/1" & "▼" for 10 seconds.
- The operation is confirmed by flashing the lamps.

Notes:

- Regardless of other light level commands (e.g. changes in the constant light level), an enabled PIR will switch the lights to the **PIR OFF** scene if no movement is detected within its programmed delay time.
- PIR scenes can be any combination of light levels of channels A & B.

PIR delay time setting / Last level function

Time setting also enables last level functionality.

- If last level function is enabled and the lights are switched on **from the mains switch**, the lights will turn on to the level they were at before switch off. If the lights were already OFF when the mains was switched off they will remain off after the mains is switched on.
- Last level function can be turned off by carrying out Initial configuration / Minisensor reset.

To change the PIR delay time please follow the sequence described in the following tables.

To select short PIR delay times:

Press and hold keys	Delay to low level	Delay from low level to OFF	Notes
"0/1" & "4" for 10s			
"0/1" & "3" for 10s	20 seconds	20 seconds	Test setting*
"0/1" & "3" for 10s	1 minute	20 minutes	
"0/1" & "3" for 10s	5 minutes	20 minutes	
"0/1" & "3" for 10s	10 minutes	20 seconds	

To select long PIR delay times:

Press and hold keys	Delay to low level	Delay from low level to OFF
"0/1" & "3" for 10s		
"0/1" & "4" for 10s	20 minutes	20 seconds
"0/1" & "4" for 10s	30 minutes	20 seconds
"0/1" & "4" for 10s	45 minutes	20 seconds
"0/1" & "4" for 10s	60 minutes	20 seconds

Each step of the sequence is confirmed by flashing the lamps.

If you need to choose a shorter time than already in use you must start the sequence from the beginning.

- *) Test setting: This mode should only be used to test the functionality during installation. In test mode the Constant light response time is 20 times quicker than in normal operation and should only be used for demonstration or test purposes.

Recommendations

- Plan programming carefully to avoid having to unnecessarily reset the Minisensor. (See appendix A)
- Ensure that the Minisensor is located out of view of direct light to ensure correct operation of the constant light sensor and IR.
- Position the Minisensor in a area of combined natural + artificial light for best operation of the constant light feature
- If multiple sensors are installed, care should be taken to ensure the sensing areas of the Minisensors do not cross and interfere with each other.
- Only connect a Helvar Minisensor to the Digidim input of a Helvar EL-si ballast.
- The Minisensor cannot be directly connected to the DALI interface.

Fault finding

Fault	Possible causes
<ul style="list-style-type: none">• No Operation.	<ul style="list-style-type: none">• Incorrect connection• No power applied to the ballast.
<ul style="list-style-type: none">• No response to scene buttons on the remote control.	<ul style="list-style-type: none">• Preset levels are not installed (carry out reset)• Scenes programmed to off• Batteries flat.
<ul style="list-style-type: none">• Lights do not dim.	<ul style="list-style-type: none">• Flat / weak batteries in IR• No scenes or levels preset.
<ul style="list-style-type: none">• Constant light does not operate.	<ul style="list-style-type: none">• Sensor is positioned in line with direct lighting (natural or artificial).• Constant light function is disabled.
<ul style="list-style-type: none">• No response to IR.	<ul style="list-style-type: none">• Check batteries in IR.• Ensure correct addressing of remote control unit
<ul style="list-style-type: none">• Lights do not switch on from PIR.	<ul style="list-style-type: none">• PIR 'Manual ON, Automatic OFF' is enabled.• PIR is disabled.
<ul style="list-style-type: none">• Lights do not switch off from PIR.	<ul style="list-style-type: none">• PIR is disabled.• PIR OFF scene is not programmed to off.
<ul style="list-style-type: none">• PIR switches light off very quickly.	<ul style="list-style-type: none">• Minisensor is in test mode.

Technical specifications

Constant light sensor

Reception area: 100°
Measuring range: 50-1000 lux

IR-receiver

Frequency 36kHz

Presence detector

Detection area 4.5 x 3.0m (mounting height 3.0m)

Electric data

Internal communication with Helvar EL-si electronic ballast.

Operation conditions

Ambient temperature range 0°C to 50°C
Storage temperature range -10°C to 70°C
Relative humidity 90% maximum, non-condensing

Conformity & Standards

Safety: Only valid if sensor is mounted in the same fitting as the ballasts.
Safety EN61347-2-11, EN61347-1, EN60598-1
IP rating 44
Isolation 4kV

Finish:

White thermoplastic

Protection:

Single insulation

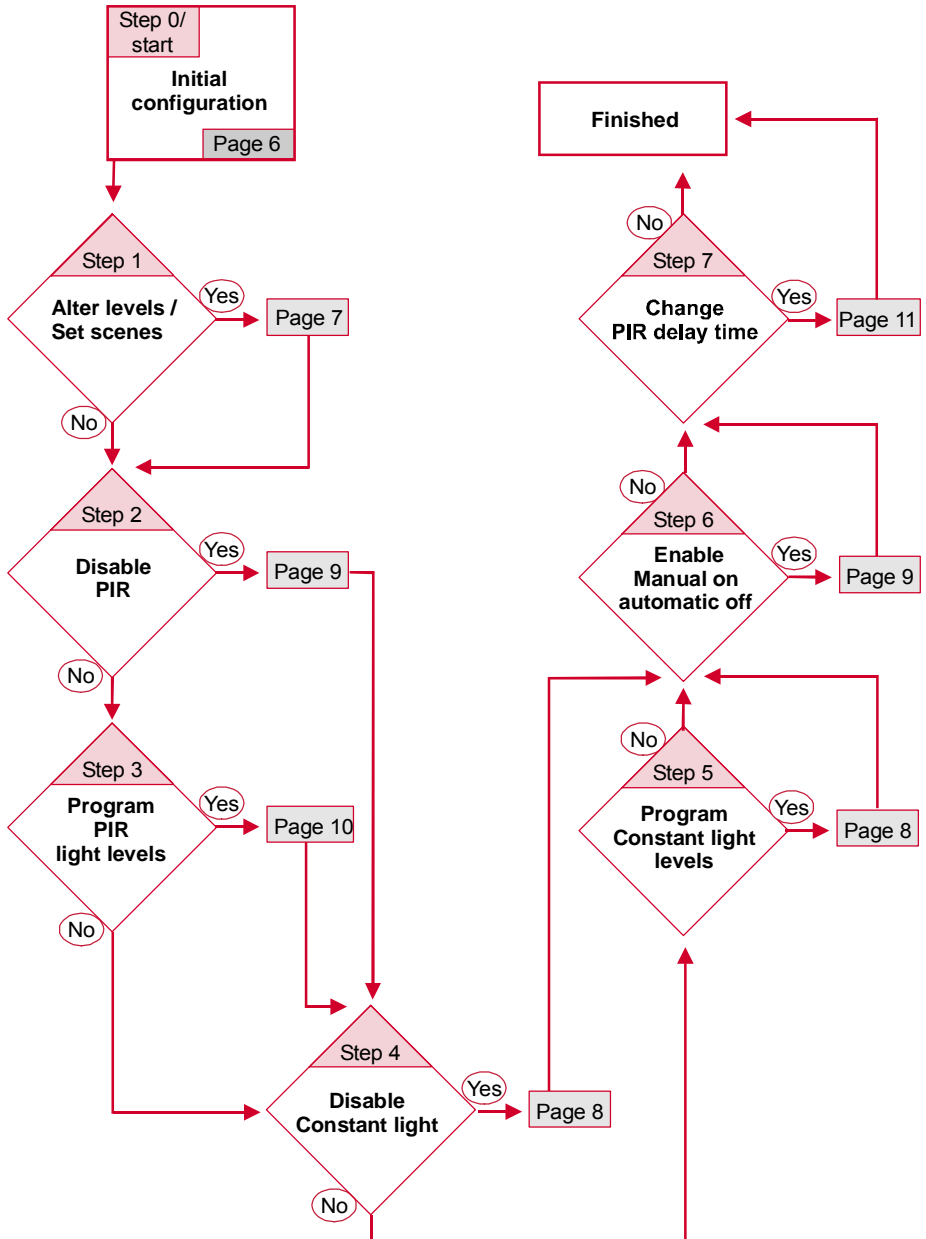
Wire length:

Max. from Minisensor to furthest ballast 15m

Note:

- The Minisensor is not designed for installation outside of a luminaire.

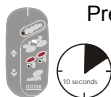
Always start the programming by carrying out the Minisensor Initial configuration. Then select "Yes" or "No" for each step and follow the instructions on referred pages.



Energy saving lighting with “Presence detector” and “Constant light” features:

- Lights will go off in 10 minutes when no movement is detected in the room.
- Lights will go on if being off when movement is detected
- Lighting level will remain the same despite the changes in the natural light

1. Reset the minisensor (page 6)



Press and hold keys “3” & “4” simultaneously for 10 sec. (or until the lights flash.)

2. Change and store the constant light level (page 8)

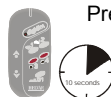


- Select the desired overall light level with “▲”, “▼” buttons
- Press key “0/1” for 10 seconds (or until the lights flash) to store the light level

Energy saving lighting with “Constant light” and “Automatic off manual on” features:

- Manual switch on only
- Lights will go off in 30 minutes when no movement is detected in the room.
- Lighting level will remain the same despite the changes in the natural light

1. Reset the minisensor (page 6)



Press and hold keys “3” & “4” simultaneously for 10 sec. (or until the lights flash.)

2. Change and store the constant light level (page 8)



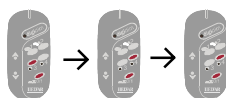
- Select the desired overall light level with “▲”, “▼” buttons
- Press key “0/1” for 10 seconds (or until the lights flash) to store the light level

3. Enable “Manual ON, Automatic OFF” feature (page 9)



- Simultaneously press & hold “0/1” & “2” for 10 seconds.
- Simultaneously press & hold “0/1” & “4” for 10 seconds.

4. Change the PIR delay time to 30 minutes (page 11)



- Simultaneously press & hold “0/1” & “3” for 10 seconds.
- Simultaneously press & hold “0/1” & “4” for 10 seconds.
- Simultaneously press & hold “0/1” & “4” for 10 seconds.

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